

Issue Brief – Construction Inflation

NUMBER CFGO-07-07

SUMMARY

The State of Utah, together with other public agencies, contractors, and private owners, has suffered from continuous steep price increases in construction materials since 2004. This is the primary reason why the cost of building projects has escalated dramatically in the past four years. This Issue Brief addresses the following questions:

- What has happened to construction materials costs?
- How does construction materials cost escalation compare to the Consumer Price Index (CPI) and the Producer Price Index (PPI)?
- Why has construction experienced much greater cost increases than the overall economy?
- What is likely to happen in the next year?
- Gypsum products prices rose approximately 20 percent in each of 2004, 2005, and 2006.
- Concrete products prices rose 7.6, 9.8, and 10.4 percent in 2004, 2005, and 2006.
- Plastic construction products rose in cost by 7.2, 22.6, and 20.1 percent in the past three years.
- Diesel fuel has been the most dramatic example of persistent price increases since 2002. It rose 54 percent in 2002, 13 percent in 2003, 38 percent in 2004, 46 percent in 2005, and 27 percent in 2006.
- In a bit of good news, lumber and plywood costs have held fairly steady over the past several years and have declined by about six percent in 2006. This is better news for residential construction than nonresidential.

Data for this issue brief come from the Associated General Contractors of America's Construction Inflation Alert, September 2006.

DISCUSSION AND ANALYSIS

What has happened to construction materials costs?

As demonstrated in Table 1 (page 2), inflation in construction materials has been sudden, extreme, and mostly unexpected in severity. As examples:

- Steel products jumped 49 to 66 percent in 2004 after years of declining or modest price changes. Prices dropped slightly in 2005 but have increased approximately 15 to 20 percent in 2006.
- Other metals have also escalated, particularly copper at 81 percent in the last twelve months. Aluminum mill products have averaged about 10.7 percent cost growth in each the past three years.
- Asphalt has seen double-digit percentage increases in three of the last four years. The last year has been dramatically high at 77 percent growth for asphalt and 38 percent growth for asphalt mixtures and blocks. This is especially burdensome for highway construction.

Percent Inflation for Specific Construction Materials								
	12 months to December					to Aug 2006 over past		
	2001	2002	2003	2004	2005	1mo.	3 mo.	1 yr.
#2 Diesel Fuel	-44.7	54.4	13.0	37.9	46.3	6.1	6.0	26.6
Asphalt			10.0	18.3	17.8	6.9	29.0	77.4
Asphalt paving mixtures and blocks	0.9	2.0	3.7	4.3	4.2	1.3	7.1	37.9
Asphalt felts and coatings	4.6	-0.6	6.3	4.1	17.1	1.2	1.8	9.2
Prepared asphalt and tar roofing and siding prod	5.0	-1.7	5.3	4.6	18.5	1.4	0.2	6.3
Concrete products	2.5	-0.3	1.5	7.6	9.8	0.0	1.5	10.4
Concrete block and brick	2.3	1.6	3.2	4.7	8.1	-0.1	1.6	8.2
Concrete pipe	4.4	1.7	1.4	5.5	8.6	0.0	2.3	4.7
Ready-mixed concrete	2.5	-1.1	2.1	8.7	11.6	0.0	1.9	11.9
Precast concrete products	0.7	0.3	2.5	6.0	6.4	0.1	-0.1	6.1
Brick and structural clay	5.3	1.9	0.7	3.0	9.5	-0.2	0.4	8.4
Plastic construction products	-2.7	3.1	3.2	7.2	22.6	0.2	0.8	20.1
Rubber and plastic plumbing products	-6.3	8.7	5.8	17.8	38.9	not available		
Gypsum products	0.4	3.4	2.8	20.0	18.2	2.9	3.2	21.2
Insulation materials	0.4	-1.5	2.0	8.6	2.6	-0.1	-1.2	7.1
Lumber and plywood	-2.9	1.4	3.1	5.0	-1.0	-3.8	-9.0	-6.1
Architectural coatings	2.9	0.6	3.9	5.3	9.2	-0.3	-0.3	8.6
Steel mill products	-6.1	11.1	1.7	48.8	-3.6	1.2	9.2	23.3
Hot-rolled bars, plates, and structural shapes	-4.3	2.1	11.3	53.8	-0.9	-0.4	5.5	15.3
Steel pipe and tube	-3.7	9.1	3.3	66.0	1.1	0.0	3.0	8.4
Copper and brass mill shapes	-9.5	-1.6	11.6	29.6	31.0	-2.4	2.1	81.0
Aluminum mill shapes	-2.9	-0.9	-0.5	9.9	6.6	0.1	0.1	15.6
Structural, architectural, pre-engin metal products	-1.5	-0.4	1.0	26.1	3.1	0.8	2.8	6.0
Fabricated structural metal for buildings	-1.5	-3.3	-0.1	20.0	3.3	0.8	2.9	8.0
Architectural and ornamental metalwork	-0.1	3.7	0.7	23.5	5.9	0.7	2.6	4.5
Fabricated iron and steel pipe, tube, and fittings	0.6	0.1	1.2	32.6	5.5	0.3	3.4	7.0
Fabricated steel plate	0.6	-1.0	0.6	7.6	1.0	0.0	8.7	9.1
Prefabricated metal bldgs	0.0	4.0	-0.7	35.5	2.8	0.2	3.5	1.2
Construction machinery and equipment	-0.1	1.9	1.3	6.0	5.0	-0.1	0.0	3.2

Table 1

How does construction materials cost escalation compare to the Consumer Price Index (CPI) and the Producer Price Index (PPI)?

The Consumer Price Index used in this brief reflects inflation for a mixed basket of goods for a typical urban consumer (CPI-U). The Producer Price Index (PPI) reflects inflation on finished goods.

Since 2004, the average cost of construction materials has increased much faster than the overall CPI-U or PPI. Prior to 2004 there was very little inflation in the overall economy or in the price of construction materials.

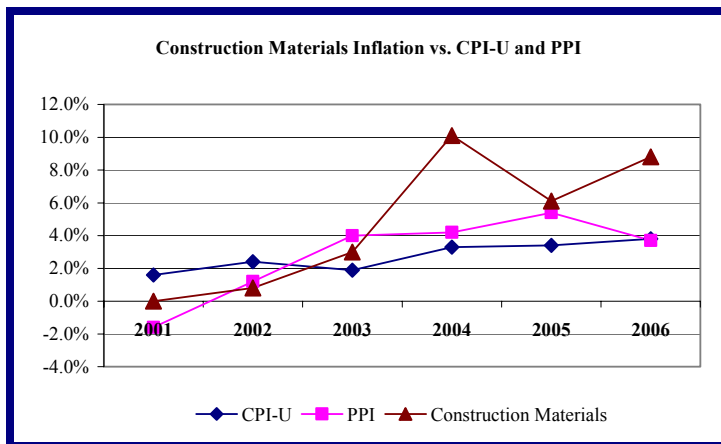


Figure 1

In the twelve months from August 2005 to August 2006 the PPI for construction materials rose 8.8 percent, compared to 3.8 percent for the CPI-U and 3.7 percent for the PPI. The gap (five percentage points) is nearly as large as the six point gap at the end of 2004.

Figure 2 shows inflation rates in various types of construction (nonresidential, highway, and other heavy construction) compared to overall inflation in the economy. Nonresidential construction is the most relevant to the CFAS appropriation subcommittee.

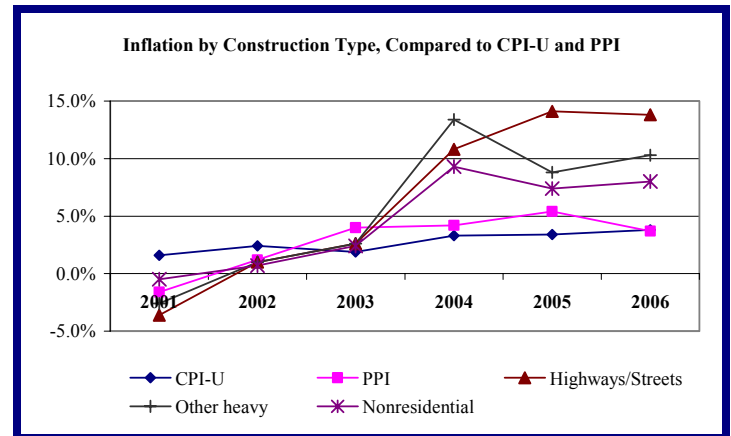


Figure 2

Nonresidential building construction costs escalated in the 12 months between August 2005 and 2006 because of the sharp increases in materials as shown in Table 1. Highway construction costs have increased even more than nonresidential buildings because of its heavy reliance on steel, ready-mixed concrete, asphalt, and diesel, all of which have been subject to double digit inflation in the same time period.

Figure 3 illustrates inflation in some critical construction materials compared to the CPI-U.

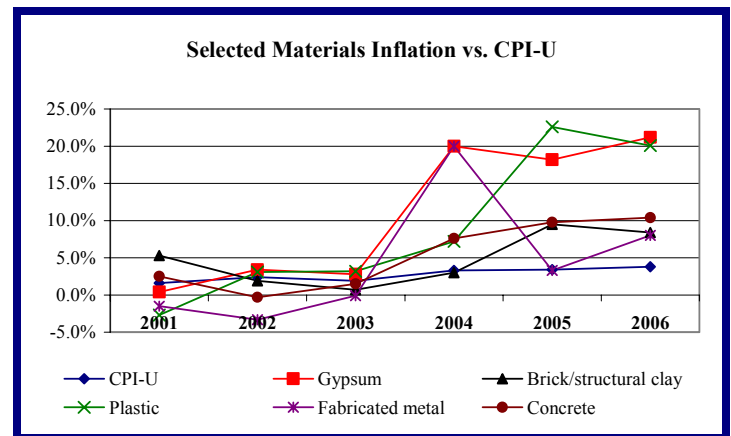


Figure 3

Figure 3 doesn't include asphalt or diesel because those two materials experienced such volatile inflation rates they would compress the differences between the other materials in a chart.

In sum, the cost of construction materials is inflating at more than double the overall inflation rate in the economy (over eight percent versus under four percent).

Why has construction experienced much greater cost increases than the overall economy?

Generally speaking, cost increases in construction materials appear to be caused by increases in their basic inputs. For example, diesel fuel and asphalt are both derived from crude oil. Inflation on crude oil has risen at 14 to 61 percent per year since 2002. Refineries are converting more crude to gasoline which leaves less product for diesel and asphalt. Concrete is made from construction sand, cement, gravel and crushed stone, all of which went up 10-11 percent in the last twelve months. The spike and dip in steel prices followed a similar pattern in scrap iron and steel prices. In the last year, scrap prices have jumped 20 percent and steel mill products have risen 23 percent.

Two other factors make construction vulnerable to higher than usual inflation. First, contractors are usually locked into fixed quantities of materials. There is little ability to use different materials or reduce the amount used. Compounding this factor is the expanding economies in rapidly developing countries such as China and India, causing demand for key materials to increase faster than suppliers can respond.

The typical U.S. house uses 440 pounds of copper. Copper is also widely used in nonresidential buildings, cars, electronics, and other applications. At the same time as domestic demand is rising, foreign demand is also climbing. But most copper is supplied by a fixed number of mines, many of which have been unable to expand production.

Second, construction materials are subject to increasing transportation costs and bottlenecks. Construction requires delivery of large quantities of goods to a single point, in many cases from around the world. Any of many influences can drive up the cost of delivery, including fuel costs, demand for carrier space, labor costs, and port, railyard, and highway congestion.

What is likely to happen in the next year?

It appears likely that the excess of construction cost inflation over general inflation will continue in the near future. Under these conditions it does not seem advisable to postpone capital development projects with the hope that they will be less expensive in a year or two. A healthy domestic and world economy makes

it almost unavoidable that construction will experience more cost increases.

According to the Associated General Contractors of America, over the next year construction materials are likely to rise faster than overall prices, but not as rapidly as in the past year. Some previously fast-increasing costs, such as diesel fuel (assuming current trends continue), plastics, and gypsum, should decline from levels of a year ago. Other costs, such as asphalt and copper, will remain high but not wildly high. Steel and concrete costs are harder to predict.

Conclusion

Construction materials prices are likely to keep rising at a much faster rate than the three to four percent increase in the CPI. A more realistic inflation target for construction materials is six to eight percent, or about double the rate of general inflation. At the moment it appears price increases over the next year will be less severe than recently for copper and concrete. Construction plastics and gypsum products should decrease slightly in price. Steel, diesel fuel, and asphalt prices could move in either direction.

The experience of the past three years has shown that many materials can undergo unexpected price spikes and supply problems for any number of reasons. It appears prudent to expect one input or another to experience price jumps or supply disruptions. Therefore it appears the state would only experience higher prices by postponing capital development projects for a year or two.